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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/797,266

03/10/2004

Yu Deng

200314604-1

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03/04/2009

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FORT COLLINS, CO 80527-2400

EXAMINER

SOMERS, MARC S

ART UNIT

PAPER NUMBER

2169

NOTIFICATION DATE

DELIVERY MODE

03/04/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|                              |                                      |                                    |  |
|------------------------------|--------------------------------------|------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/797,266 | <b>Applicant(s)</b><br>DENG ET AL. |  |
|                              | <b>Examiner</b><br>MARC SOMERS       | <b>Art Unit</b><br>2169            |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The amendments to the claims were received on 1/22/2009. Claims 11-20 are pending where claims 1-10 and 21-25 were withdrawn.

### ***Specification***

2. The amendment to the specification was received on 11/12/2008. The changes are acceptable.

### ***35 USC § 101***

The applicant has indicated the claims are not directed to non-statutory subject matter i.e. signals. By incorporating the word "storing" in the claim, the applicant has distinguished these claims from being directed towards signals such that computer readable medium may include recordable/non-recordable media such as RAM, ROM, and magnetic disk storage media (i.e. hard drives).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 11-12 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cui et al [WO 03/030025 A1] in view of Ardoin et al [US 5,692,184] and Bonatti et al, *An Ontology-Extended Relational Algebra*.

6. With regard to claim 11, Cui teaches a functional relationship between one or more objects of distinct ontologies in a metadata system (see lines 8-10 on page 6 and lines 17-20 on page 10; a mapping is performed between the different/distinct ontologies where a conversion function is used in connection with the mapping of the distinct ontologies).

7. Cui does not explicitly teach generating a node to represent a functional relationship between one or more objects of distinct ontologies in a metadata system; associating a metadata expression of the functional relationship to the node; and associating one or more parameters of the functional relationship to the node.

8. Ardoin and Bonatti teach generating a node to represent a functional relationship between one or more objects of distinct ontologies in a metadata system (see Ardoin, col 6, lines 49-65; a node is generated that represents a functional relationship between different values; see Bonatti, the first two paragraphs under section 2.1 on page 192

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and the first two paragraphs in the right column on page 196; conversion functions can be used to convert between different currencies from different ontologies);

associating a metadata expression of the functional relationship to the node (see Ardoin, col 6, lines 49-65; a function/expression is associated with the function node, see Figures 6 and 7 for examples of expressions);

and associating one or more parameters of the functional relationship to the node (see Ardoin, col 6, lines 39-48 and Figures 6 & 7; values nodes are used as input parameters to the expression/functional relationship).

9. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the mapping server of Cui by using function nodes to keep track of the functional relationship between the different ontologies when using the conversion function as taught by Ardoin and Bonatti in order to maintain data integrity when an object/data is modified between the different database and their respective ontologies.

10. With regard to claim 18, this claim is substantially similar to claim 11 and is rejected for the same reasons as discussed above. The only difference between claim 11 and 18 is that claim 18 recites a computer readable medium (see Ardoin, Figure 3, RAM 66 and Disk Drive 67).

11. With regard to claims 12 and 19, Cui in view of Ardoin and Bonatti teach associating a dependency chain representing the dependent relationships between

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properties of a parameter path associated with the one or more parameters of the functional relationship (see Ardoin, col 5, line 59 to col 6, line 3; dependency relations are identified and are used to by building one dependency relation upon another).

12. With regard to claim 15, Cui in view of Ardoin and Bonatti teach identifying mappings between dependency chains spanning the distinct ontologies (see Cui, lines 18-20 on page 10; mappings between different/distinct ontologies are identified).

13. With regard to claim 16, Cui in view of Ardoin and Bonatti teach utilizing heuristics to suggest alternative mappings between dependency chains (see Cui, lines 4-8 on page 9; heuristics executed by computers/machines are used to suggest possible/alternative mappings between the distinct ontologies).

14. With regard to claim 17, Cui in view of Ardoin and Bonatti teach maintaining the mappings that span the distinct ontologies when one of the distinct ontologies is modified (see Cui, lines 10-15 on page 9; when creating mappings between ontologies, if an ontology has been modified the system determines whether they can re-use a previous mapping, i.e. by reviewing the library of mappings and determine which previous mappings can be re-used).

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15. Claims 13-14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cui et al [WO 03/030025 A1] in view of Ardoin et al [US 5,692,184] and Bonatti et al, *An Ontology-Extended Relational Algebra* in further view of W3C, *Resource Description Framework (RDF): Concepts and Abstract Syntax*.

16. With regard to claim 13, Cui in view of Ardoin and Bonatti teach all the limitations of claim 11 as discussed above and further teach a dependency chain (see Ardoin, col 5, line 57 to col 6, line 3; a dependency relation/chain is associated/aggregated with the nodes).

17. Cui in view of Ardoin and Bonatti teach generating a resource but do not explicitly teach the aggregating of a local name, type.

18. W3C teaches generating a resource (see first paragraph on page 8 of 27 in section 3.2; nodes/resources are created/generated) that aggregates a local name, type (see second paragraph in section 3.5 on page 11 of 27; nodes can be aggregated with rdf:type property which is a type as well as a name such as a predicate/column name).

19. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the mapping server of Cu in view of Ardoin and Bonatti by using RDF graphs as a mapping of the distinct ontologies as taught by W3C in order to take advantage of a standard syntax that is used to represent information.

20. With regard to claim 14, Cui in view of Ardoin and Bonatti teach all the limitations of claim 11 as discussed above and further teach a dependency chain (see Ardoin, col 5, line 57 to col 6, line 3; a dependency relation/chain is associated/aggregated with the

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nodes) and that is associated to a name through an explicit mapping (see Cui, lines 4-6 on page 9; an explicit mapping/correspondence can be made by a human when mapping between distinct ontologies).

21. Cui in view of Ardoin and Bonatti teach generating a resource but do not explicitly teach generating a resource that aggregates a type.

22. W3C teaches generating a resource (see first paragraph on page 8 of 27 in section 3.2; nodes/resources are created/generated) that aggregates a type (see second paragraph in section 3.5 on page 11 of 27; nodes can be aggregated with rdf:type property which is a type).

23. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the mapping server of Cu in view of Ardoin and Bonatti by using RDF graphs as a mapping of the distinct ontologies as taught by W3C in order to take advantage of a standard syntax that is used to represent information.

24. With regard to claim 20, Cui in view of Ardoin and Bonatti teach all the limitations of claim 18 as discussed above and further teach a dependency chain (see Ardoin, col 5, line 57 to col 6, line 3; a dependency relation/chain is associated/aggregated with the nodes).

25. Cui in view of Ardoin and Bonatti do not explicitly teach generating a blank node that aggregates a local name, and type.

26. W3C teaches generating a blank node (see second to last paragraph on page 8 of 27 in section 3.2; blank nodes are created) that aggregates a local name, type (see



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second paragraph in section 3.5 on page 11 of 27; nodes can be aggregated with rdf:type property which is a type as well as a name such as a predicate/column name).

27. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the mapping server of Cu in view of Ardoin and Bonatti by using RDF graphs as a mapping of the distinct ontologies as taught by W3C in order to take advantage of a standard syntax that is used to represent information.

### ***Response to Arguments***

28. Applicant's arguments (see third paragraph on page 5) have been fully considered and are persuasive. The specification positively recites a "computer readable medium" and the claims direct the "computer readable storage medium" to computer memory such as non-volatile and volatile computer memory.

29. Applicant's arguments (see second to last paragraph on page 5 through the last paragraph on page 7) have been fully considered but they are not persuasive. The applicant argues that the cited prior art references of record do not teach a "metadata expression". The Examiner respectfully disagrees. Cui in view of Ardoin and Bonatti teach a functional relationship between one or more objects of distinct ontologies in a metadata system (see Cui, lines 8-10 on page 6 and lines 17-20 on page 10; a mapping is performed between the different/distinct ontologies where a conversion function is used in connection with the mapping of the distinct ontologies) where the functional relationship represents the relationship between data (see Bonatti, the first two

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paragraphs under section 2.1 on page 192 and the first two paragraphs in the right column on page 196; conversion functions can be used to convert between different currencies from different ontologies). Metadata is data that describes/represents other data. A functional relationship that indicates the relationship between two different pieces of data is metadata.

### ***Conclusion***

30. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARC SOMERS whose telephone number is (571)270-3567. The examiner can normally be reached on 8 am - 4 pm EST Monday-Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Trujillo can be reached on (571) 272-3677. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. S./  
Examiner, Art Unit 2169  
MS  
2/23/2009

/James Trujillo/  
Supervisory Patent Examiner, Art  
Unit 2169